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Bureau of Entomology
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Forest Entomology.

Forest Insect Field Station,
Coeur d'Alene, Idaho.

INFORMATION ON THE MOUNTAIN PINE BEETLE IN IDAHO AND MONTANA

The mountain pine beetle (Dendroctonus monticolae Hopk.) attacks and kills healthy mature western white pine, western yellow pine, lodgepole pine and sugar pine. The adult insects, which are stout, black, cylindrical bark beetles about 1/5 of an inch in length, bore through the outer bark and construct long perpendicular egg galleries directly between the living bark and wood. Along these galleries which may vary from 14 to 30 inches in length, eggs are deposited which soon hatch into small grubs or larvae. These white legless larvae excavate short mines at right angles to the egg galleries which are also directly between the bark and wood. These larval mines terminate in a cell in which the mature larvae transform to the new adults.

The combined results of the egg galleries and larval mines is the girdling of the tree which causes its death. In order to kill a tree a large number of beetles must attack it in order to overcome its resistance. This attack usually occurs throughout the merchantible length of the tree.

When the transformation from the larvae to the new adult is complete the insects emerge by boring an emergence hole through the outer bark. A week or 10 days or even more may elapse between the time the new adults are formed and emergence. By boring away the bark between the pupae cells several beetles may use the same emergence hole or even take advantage of cracks or other openings in the bark. The principle emergence of these beetles in Idaho and Montana occurs during the latter part of July and early August. The new adults may fly several miles before attacking new trees. This attack usually occurs within a few days following the emergence. Throughout Idaho and Montana there is usually but one generation of these insects per year. However during long seasons, especially in white pine and yellow pine, there is often a partial second generation.

Insect infested trees can be located by the fading foliage, by boring dust at the base of the tree, or from the pitch exudations (pitch tubes) at the mouth of the entrance tunnels. With infested yellow pine and white pine there is a slight fading of the foliage the fall following the attack, but with lodgepole pine there is no discoloration until the following June. The discoloration of the foliage varies in different locations so it is always necessary to examine trees in order to determine the status of the brood corresponding to the foliage discoloration. For the proper location of the infested trees during control projects it has been found necessary to conduct a 100 percent survey of the area.

In considering the thoughts of control it must be remembered that it is impossible to save a tree after it has once been successfully attacked. However the insect brood within the tree can be destroyed and the subsequent attack of other trees prevented. Though nature aids materially in the prevention and reduction of epidemics by providing natural enemies of these destructive insects, under certain conditions a normal infestation can increase to a severe epidemic in a very few years. As the development of the insect takes place directly between the bark and wood it is only necessary to remove the bark while the broods are in a larvae or pupae stage in order to destroy them by exposure. When feasible it has been found to be more economical to burn or scorch the infested logs than to peel the bark from the trunk. In Southern Oregon it has been found that with an air temperature of 80 to 90 degrees the broods on the top side of the log will be killed in a very few hours if the trees are felled and the trunk exposed to the sun. In using this method it will be necessary to turn the log once, and perhaps twice, in order to destroy the insects on the lower side.

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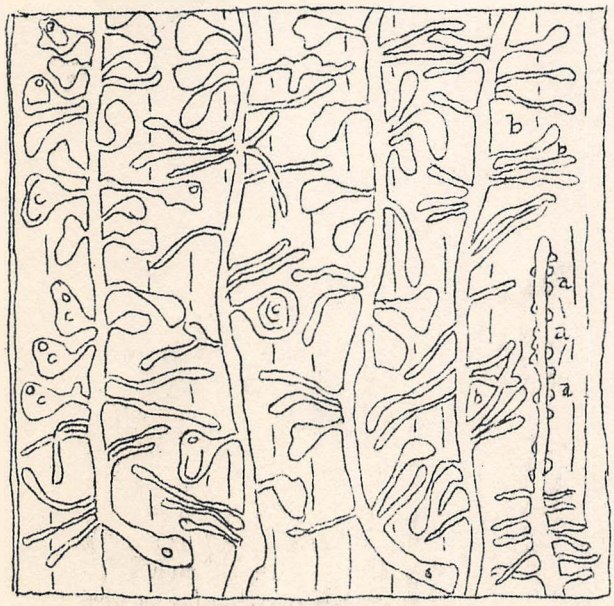
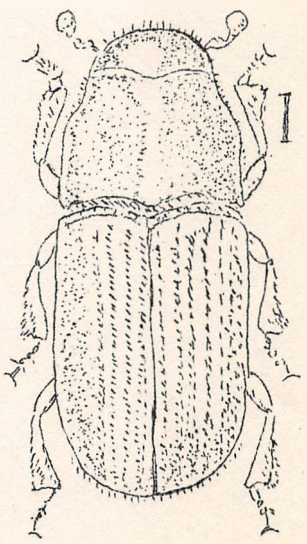
Mountain Pine Beetle



a-eggs. b-larval mines. c-pupal cells (Reduced)



Adult Mountain Pine Beetle (Greatly Enlarged).